DTIC/TR-87/22

AD-A185 953

AUTOMATION OF THE DUPLICATE CHECKING FUNCTION AT DTIC

Part 2:

Analysis of the DTIC Selection Functions and Their Effect

on Duplicate Checking Automation

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May 1982

D efense
T echnical
I nformation
C enter

Office of Information Systems and Technology

Cameron Station, Alexandria, VA 22304-6145

AD-A185 953

1a. REPORT SECURITY CLASSIFICATIC				1b. RESTRICTIVE MARKINGS
Unclassified/Unlimite				

2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION / AVAILABILITY OF REPORT
	Approved for public release;
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	distribution unlimited.

4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
DTIC/TR-87-22	

6a. NAME OF PERFORMING ORGANIZATION	6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION
Defense Technical Information Center	DTIC	DTIC

6c. ADDRESS (City, State, and ZIP Code)	7b. ADDRESS (City, State, and ZIP Code)
Cameron Station	
Alexandria, VA 22304-6145	NOV 2 3 1987

8a. NAME OF FUNDING / SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER

8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS			
	PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.
	65801S			

11. TITLE (Include Security Classification)

Automation of the Duplicate Checking Function at DTIC. Part 2: Analysis of the DTIC Selection Functions and Their Effect on Duplicate Checking Automation.

12. PERSONAL AUTHOR(S)
Gladys A. Cotter and Allan D. Kuhn

13a. TYPE OF REPORT	13b. TIME COVERED FROM ___ TO ___	14. DATE OF REPORT (Year, Month, Day) 820500	15. PAGE COUNT 21

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Automation, Duplicate checking, Acquisitions, Database Design,
5	2		Card catalogs, Selection criteria, Defense Technical
12	5		Information Center, DTIC

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

The Defense Technical Information Center (DTIC) automated its duplicate checking function in 1981, moving this function from the Technical Report card catalog to online checking of the Technical Report Database. The database, however, did not hold the vast amount of housekeeping information that was in the card catalog. This information was comprised of selection, acquisition, regrading, and other reference data, much of which could not be a part of the Technical Report Database data. In order to eliminate the need for duplicate checking to take place in both the database and the card catalog, the housekeeping information was analysed relative to DoD information requirements and DTIC's implementation of those requirements. The analysis resulted in a database design to automate this information, provide the management information needed, and eliminate reliance on the card catalog.

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT. ☐ DTIC USERS	Unclassified/Ulimited
22a. NAME OF RESPONSIBLE INDIVIDUAL	22b. TELEPHONE (Include Area Code)	22c. OFFICE SYMBOL
Gladys A. Cotter	(202) 274-5367	DTIC-EB

DD FORM 1473, 84 MAR   83 APR edition may be used until exhausted.
All other editions are obsolete.

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AUTOMATION OF THE DUPLICATE CHECKING FUNCTION AT DTIC
PART 2:
ANALYSIS OF THE DTIC SELECTION FUNCTIONS AND THEIR
EFFECT ON DUPLICATE CHECKING AUTOMATION

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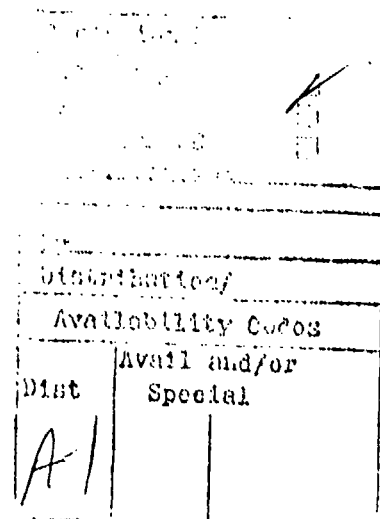
INTRODUCTION

The Defense Technical Information Center (DTIC) is the primary
Department of Defense (DoD) organization collecting, controlling, and
disseminating DoD-generated technical reports. As stated in the DTIC
Manual, Organizations, Missions, and Functions,[1] DTIC's mission is to be
responsible for the acquisition, storage, retrieval, dissemination, and
utilization of technical information for research and development managers,
scientists, engineers, and other applicable users of DTIC's technical
information data bases. In order to accomplish this mission, DTIC is
responsible for several computerized data bases which store information on
planned, ongoing, completed, and independent DoD-related research and
development (R&D). The data base that processes the completed R&D
information is the Technical Reports (TR) Data Base.

DTIC SELECTION CRITERIA

The DoD Directive for the Defense Scientific and Technical Information
Program states that DTIC will receive reports from DoD and government
agencies, industrial contractors, universities, and nonprofit organizations
participating in DoD scientific and technological activities. DTIC
selection specialists, proceeding within the principles of high standards
for the processing of reports, while providing for the maximum exchange of
information, choose from the materials received the items that constitute
the DTIC technical report collection. The acceptance of reports is based on
sources of funding, funding programs, program activities, specific projects,

tasks, specific work units, contracts and grants, security classifications, release limitations, report types, reproducibility, and special arrangements, policies, and precedents. Additionally, acquisition efforts and capability of accessioning reports into the data base that will not be announced but will be available in bibliography drops also influence selection decisions.[2]

DTIC, consequently, has rigid selection criteria and in a sense its technical reports are therefore "pre-selected." The selection process, however, must be gone through to weed out those reports that are not appropriate for the DTIC data base and collection. DTIC's written guidelines are embodied in a manual entitled Report Selection Criteria. The present guidelines were set up in the 1960s, with a major revision in 1970 and little revision since. The guidelines are strictly followed. Any deviation from them must be officially authorized. Much of the material that follows explaining the selection criteria is taken from those guidelines.

The General Selection Criteria

DTIC accessions reports of domestic and foreign activities that are funded solely by DoD, jointly by DoD and a non-DoD source, and from non-DoD sources; DTIC also processes into its collection those reports which satisfy various additional selection criteria. Source of funding is a discriminating factor, however, in selections decisions concerning reports available to users through non-DTIC dissemination channels, and involving reprints of published reports obtainable from commerial organizations.

DoD-Funded Reports

The DTIC collection consists mainly of reports submitted on primary

distribution in compliance with requirements of DoD projects and contracts. The rate of acceptance of these items is high because report preparation and report selection are controlled by identical or compatible DoD regulations. Reprints of reports published in journals are evaluated if they do not duplicate reports previously received through primary distribution. Although the addition of reports and reprints funded by DoD is customary, it is not mandatory; items that are substandard in other selection categories, such as reproducibility and media mix, may be excluded.

Jointly Funded Reports

Technical reports resulting from DoD joint or multiple support with non-DoD organizations are considered for the purposes of DTIC report selection and input to be DoD-funded. Accessioning of these partially DoD funded reports makes them available to the DoD user community through DTIC.

Research and Development Reports Not Funded by DoD

Technical reports resulting from research and development not funded by DoD, and therefore not controlled by DoD regulations nor under DoD contractual agreements, nevertheless may meet DTIC selection criteria and be added to the collection as being items of information of benefit to the DoD community. The primary factor for excluding such non-DoD reports is if such reports are already accessible through other dissemination or publications systems. These reports, then, are normally not accepted from the following sources unless the research has been jointly funded by DoD:

(3)

a. Department of Energy

b. Federal Fire Council

c. National Aeronautics and Space Administration

d. National Science Foundation

c. Reprints from domestic journals

The DTIC Acquisitions Function

Before proceeding further, I would like to describe the DTIC
acquisitions function in order to show its difference from the DTIC
selection mission. Acquistions, in the case of DTIC as a technical
information center, is an adjunct to the selection function. Acquisitions
attempts to fill gaps, both narrow and wide, that remain through omissions
in the normal document accessioning processes.

As stated by the DTIC missions manual,[3] Acquistions determines the
sources and availability of documents that are of value to the DoD
community, and attempts to "stimulate" the submission of the documents to
DTIC. The mission is carried out through focused efforts at acquiring
documents based primarily on requests from DTIC users, and from other
government technical information activities. Other sources for initiating
requests for reports are the DTIC data bases concerning planned and ongoing
research and development, and documents referenced in bibliographies.

In the efforts to fill the noticeable gaps in the collection,
Acquisitions will concentrate request procedures on multi-document
generating aspects, such as DoD contracts and specific subject research
areas. The acquisitions function, consequently, steps in to support
comprehensive coverage in the technical report collection where the normal
flow of technical reports through automatic submission is lacking.

(4)

Selection Practices

DTIC Acquisitions, then, is subordinate to the Selection function. DTIC's Selection personnel screen all reports, whether requested through Acquisitions or submitted and accessioned in accordance with DoD requirements according to rigid selection standards. These standards address subject matter, types of report, and media. These selection standards over the years have tended to exclude items and categories from the collection, even though the collection now includes over one million items as bibliographic citations in the TR Data Base and copies in microform.

In the Selection practices, types of reports are distinguishable by factors such as value of the material, its permanency, completeness of data, extent of research reported, intended use, and time coverage. Although most of the reports submitted to DTIC through primary distribution are acceptable in type, materials are screened by Selection personnel to prevent the addition of unsuitable documents.

Types of reports accepted have combinations of the following characteristics:

Written/printed materials;

Permanent records of research and development;

Documentation of results and recommendations concering scientific and techaical activities;

Coverage is limited to a single project, task, work unit, contract, grant, or small group of closely related efforts;

Charts, maps, graphs, drawings, and tables are included with textual matter as integral parts of documents;

Consists wholly or partially of bibliographic references;

Report gives significant segments of broad efforts;

Preliminary reports;

Initial reports;

Intermediate reports;

Summary reports;

Final reports;

Periodic reports (monthly, quarterly, etc.);

Theses;

Dissertations;

Reprints (funded by DoD or acquired through bilateral agreements with certain friendly foreign nations).

Materials of the following types and characteristics have been generally excluded:

Paintings, engravings, sketches;

Sound or voice recordings;

Data processing cards or tapes;

Charts, maps, graphs, drawings, and tables that are not integral parts of textual documents;

Movie films;

Still films;

Film strips;

Adminstrative papers;

Memoranda;

Letter reports;

Procedures;

Correspondence;

Document classification lists;

Requests for proposals;

(6)

Contract or grant proposals;

Estimates;

Specifications;

Cost analyses;

Contract administration documents;

Acceptance tests;

Orders;

Regulations;

Bulletins;

Handbooks;

Operating instructions;

Manuals;

Daily flight test reports;

Trade books and monographs;

Periodicals;

Reprints of reports of non-DoD funded activities (except those
acquired through bilateral agreements with certain friendly foreign
nations);

Promotional materials;

Brochures;

Advertisements;

Propaganda material;

Microform.

Media has been a major factor in the past exclusion of technical
information. It may be surprising to learn, for example, that it has been a
practice to exclude microform contributions. DTIC has always relied on its

own microform producing capabilities in order to meet requirements on dissemination control.

THE PROBLEM: DECLINING ACCESSIONS

DTIC has had a steady decline in technical information submission since its peak in the mid 1960s. The following bar graph illustrates the decline up to fiscal year 1981.

TECHNICAL REPORT INPUT BY FISCAL YEAR
(ANNOUNCED ONLY)
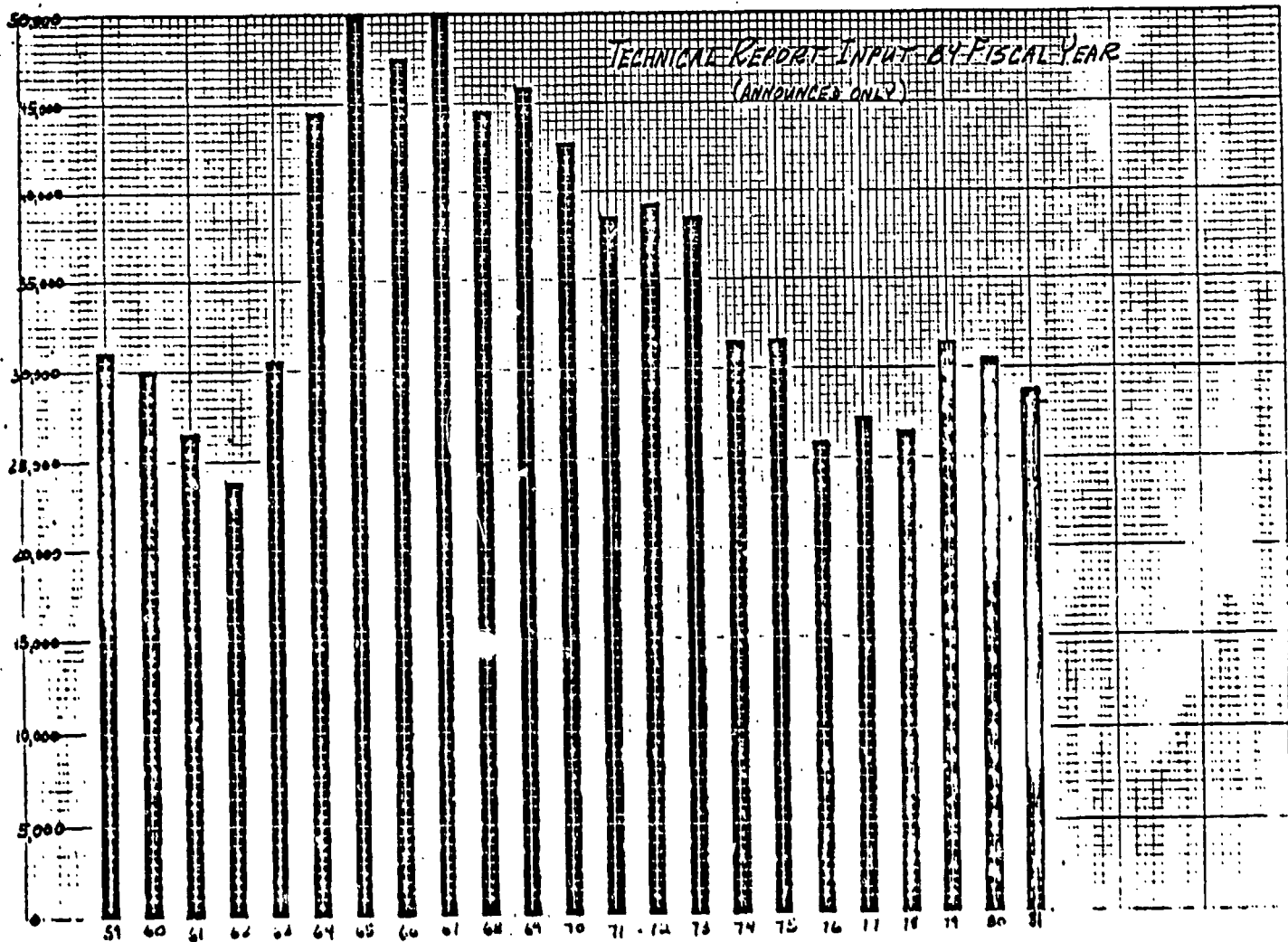
A major cause for the decline is, of course, reduced DoD funding of research and development. The decline, though, has generated the question of how to maintain the input of reports into the collection.

A number of efforts have been initiated, including the acquisition of old or static collections which would have material of benefit to the DoD community. But a major question that has been raised is whether or not the DTIC selection criteria have now become out-∹ -step with the needs of this community and should be expanded to include additional materials.

To answer this question we needed to collect data on selection rejects. Much of this data was already available in manual card and letter files, but we determined that creation of an automated system was preferable in terms of effectiveness and efficiency. It was decided to establish a Selection data base that would provide management information on Selection actions.

Interestingly enough, when we began to collect design requirements for the data base we discovered that the information collected by Selection personnel was often collected by Acquisitions staff in separate actions. We then decided to expand the "Selection Data Base" concept to a Selection/ Acquisitions Data Base. Manually, selection and acquistion information was being transcribed on color-coded cards for interfiling in the DTIC card catalog by organization source. Aquisitions staff used blue cards to record information for documents on order and green cards for requests that had been refused. Selection personnel used yellow cards for documents that had been returned to the contributor as being out of scope for DTIC, non-technical information, Official Use Only markings, illegible, et al. Examples of these cards are:

100669-9-8278   ——(BLUE)——

Texas Instruments

Performance of Hg, Cd Te photoconductive detectors,
by T.D. Pickenpaugh, et al

F33615-68-C-1573*

NOTE: We have been unable to locate the sponsor of this
contract in any of our tools. Please forward to the
appropriate monitoring laboratory.

00548

4-3162(B)   ——(GREEN)——

Physical Dynamics Inc - Detroit, Michigan

PLUME Observables and Countermeasures by
F.P. Boynton

F19(628)-72-C-0006 - PDI-74-055 - Jan 74

File closed per I.G. due to failure of ESD, to supply
DDC with either report or reply to correspondence.

gmr
7-244   06148

Public Res. Inst., CNA, Alex   ——(YELLOW)——

The Influence of Federal R & D Funding
On The Demand for and Return to
Industrial R & D

                                    Oct 79
              CRC-388

NSF PRA77-22919

* Returned - NSF sponsored, 19 Feb 80

DTIC duplicate checkers searched the card catalog to determine if the documents they were processing might have blue order cards on file. If they found a match they notified the Aquisitions staff. The yellow reject cards and the green non-submission cards alerted acquisitions and reference personnel to the reasons particular documents were not included in the DTIC collection. After locating this information the acquisitions staff would not reorder a document.

There was a further problem of card catalog Selection notations for documents which had been mailed to DTIC but were still in transit. These notes covered cases such as documents being recalled by the contributor after they had been sent to DTIC, or errata sheets arriving before the document, which is a common occurrence. These notes were placed in the card catalog by Selections to alert the dup-checker to the status of such documents during the manual dup-check. A project to close the card catalog was taking place during this research by automating all functions which until then had been done manually.* The automation solution to this particular problem was to have skeletal input into the TR data base with a pre-assigned, reusable range of record numbers. These skeletal records on this set of document status Selection information would remain online for duplicate checking until the document was received.

The other set of separate selection and acquistions information, however, in conjunction with the question on the currency of DTIC selection criteria, became included in the factors that established the need for a Selections/Acquistions data base system. After researching the selection and acquisition needs, we developed a data base design that would automate those functions and provide the management information we needed.

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* The duplicate-checking, cataloging, and reference functions.

DEVELOPMENT OF THE DATA BASE FOR SELECTION

We used the Battelle BASIS package as the data base management system
(DBMS) for the Selection/Aquisitions (SEL/AQ) Data base. The following
data elements were incorporated to satisfy the information needs we had
already identified.

FIELD NAME	NUMBER	TYPE	LABEL
CN	1	I KEY	CONTROL NO.:
AN	2	S	ACQUISITION NO.:
SO	3	S	SOURCE:
SA	4	S	SOURCE ACRONYM:
SR	5	S	SOURCE REPORT NO.:
MS	6	S	MILITARY SPONSOR:
MSA	7	S	MILITARY SPONSOR ADDRESS:
MAC	8	S	MILITARY SPONSOR ACRONYM:
MSR	9	S	MILITARY SPONSOR REPORT NO.:
TL	10	S	TITLE:
AU	11	S	PERSONAL AUTHOR(S):
CGN	12	S	CONTRACT/GRANT NO.:
DR	13	I	DATE OF REPORT:
DRQ	14	I	DATE OF REQUEST:
DA	15	I	DATE OF ANSWER:
DRT	16	I	DATE RETURNED:
DT	17	I	DATE TRACER SENT:
NP	18	S	REASON DOCUMENT WAS NOT PROVIDED:
RET	19	S	REASON DOCUMENT WAS RETURNED:
RN	20	S	REQUESTOR NAME:
RA	21	S	REQUESTOR ADDRESS:
RC	22	I	REQUESTOR USER CODE:
RS	23	S	REFERENCE SOURCE:
RT	24	S	REQUESTOR TELEPHONE NO.:
NOTES	25	S	NOTES:
CLAS	26	S	CLASSIFICATION:
PO	27	S	PROJECT OFFICER:

The system was designed so an entry made for a document on order could be either deleted when the report was accessioned into the technical report system, or appended with a reason the document was returned to the contributor or not submitted by the contributer. We used the report writer feature of BASIS to schedule recurring management reports. One such report listed all documents which had been on order for over 12 weeks and prompted Acquisition personnel to generate a tracer. As an enhancement to this process we developed an interface with our word processors in order to print all reports, letter forms, etc., in regular type face.

Another recurring management report provided the information we needed to determine whether Selection criteria should be revised. This report was generated once a month. It included all SEL/AQ data base citations which had entries in Field 19, Reason Document Was Returned. The report included the following data items:

Field 18   Reason Document Was Not Provided (from 19)

1   Record Contol Number

3   Source

10   Title

13   Date of Report

20   Requestor Name

21   Requestor Address

24   Requestor Telephone Number

The report format generator could collate all citations for documents that were rejected for the same reason. The collation was done by assigning numeric codes for the reasons, for example: 1 for Non-Technical Information, 2 for microform, 15 for "miscellaneous," etc. This system also recorded all requests for the rejected documents on record in this SEL/AQ data base.

Using this report for our criteria application evaluations, we were able to quickly determine the major reasons for document rejections. We also had immediately on hand the information to contact requestors without having to pull extended searches in correspondence files. We could call and interview the requestor to discuss the need for these documents.

Management Report Evaluation Results

Evaluations of the data base generated reports bought out the following major reasons for DTIC Selection function rejections:

1. Non-Technical Information;

2. Non-DoD Funded;

3. Sent as microform;

4. Sent with microform included (media mix).

In reviewing document titles that were rejected as non-technical information, we found that many of these reports covered topics such as management, or social science and behavior. For example, reports on "Women in the Work Force" and "Quality Circles" were being rejected.

In interviewing individuals who requested these documents, they explained that social science and management science information was becoming critical to the evolving needs of a technically oriented society, and to the DoD R&D community specifically. R&D managers, for example, are faced with continually shunting research dollars around, and need to be able to motivate their staffs now more than ever. Also, with public law requirements for transfer of technology from DoD to the private sector, DoD managers need to have access to information on major societal concerns. In response to these findings a separate project was established to expand the

subject coverage of the DTIC Technical Report Data Base.

The prevalence of documents which were rejected because of non-DoD funding was surprising since according to selection criteria the documents were acceptable. We found that this was a case where tradition was stronger than written guidelines. Apparently the acceptance of Non-DoD reports was included in the 1970 revision of the Report Selection Criteria, but the Selection staff, many of whom had been working there for over 20 years, and were experts in the criteria, were slow to adopt the "new" policy. This situation required that management emphasize that non-DoD reports were to be accessioned in conformance with the applications and restrictions expressed in the guidelines.

In conjunction with this study, a number of other projects have been established. Two joint projects concern gaining access to missing DoD technical reports, and to needed non-DoD technical reports based on request trends. These two projects formalize the efforts of accessioning these reports into the DTIC TR data base.

An additional formal project concerns the acceptance of multimedia material through the setting up of procedures and selection criteria to do so. This project will cover four categories: original camera ready copy, original source microfiche, combination hard copy/microfiche, and technical report data base citations entered online into the TR data base from a network of participating technical libraries. Eventually to be looked into for possible entry into DTIC's collection is the acceptance of multimedia materials such as color graphics, computer tapes or programs and documentation, audiotapes, video tapes and disks, and electronic transmission of technical reports.

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The DoD community is interested in research and development activities and results not only on a national level, but also on the international level. DTIC has the responsibility to provide technical information needed by the community from all possible areas, and not just store information generated by it.

We will continue to monitor the management selection and acquisitions data from the SEL/AQ Data Base. In doing so, we hope to keep our selection criteria in line with the evolving needs of the community we serve.

FOOTNOTES

1. DTIC Manual 5810.1: <u>Organization, Missions, and Functions</u>, May 1981, p. v.

2. DTIC Manual 4185.4: <u>Report Selection Criteria</u>, June 1970 p. I-1.

3. Ibid. ref. 1, p. 8.08.

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DTIC Major Project Statement: Multimedia Input. 1981.

DTIC Major Project Statement: Provide Convenient Access to Any Needed Non-DOD Documents. 1981.

DTIC Major Project Statement: Provide Convenient Access to Missing DoD Documents. 1981.

DTIC Minor Project Statement: Automate Selection/Acquisition Information. 1981.

DTIC Manual 4185.4: Report Selection Criteria. June 1970.

DTIC Manual 5810.1: Organization, Missions, and Functions. May 1981.